



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): PELLERITE et al.

Group Art Unit: 1762

Serial No.: 08/902,666

Examiner: M. Lusignan

30 July 1997

Docket No.: 52533 USA 3A

Title: ANTISOLING COATINGS FOR ANTIREFLECTIVE SURFACES
AND METHOD OF PREPARATION

Assistant Commissioner for Patents
Washington, D.C. 20231

We are transmitting the following documents along with this Transmittal Sheet (which is submitted in triplicate):

- ☒ A return postcard.
☐ A Petition for Extension of Time for __ month(s) and a check in the amount of \$__ for the required fee.
☐ An Information Disclosure Statement (__ pg); 1449 forms (__ pgs); and copies of __ cited documents.
☐ A check in the amount of \$__, for ____.
☐ A certified copy of a __ application, Serial No. __, filed __, 199__, the right of priority of which is claimed under 35 U.S.C. §119.
☐ Other: ____.
☒ Response (4 pgs)
☒ No Additional fee is required. The fee has been calculated as shown:

Fee Calculation for Claims Pending After Amendment					
	Pending Claims after Amendment (1)	Claims Paid for Earlier (2)	Number of Additional Claims (1-2)	Cost per Additional Claim	Additional Fees Required
Total Claims				x \$22 =	\$0
Independent Claims				x \$82 =	\$0
One or More New Multiple Dependent Claims Presented? If Yes, Add \$270 Here →					\$0
Total Additional Claim Fees Required					\$0

Please consider this a PETITION FOR EXTENSION OF TIME for a sufficient number of months to enter these papers and please charge any additional fees or credit overpayment to Deposit Account No. 13-4895. A duplicate copy of this sheet is enclosed.

CERTIFICATE UNDER 37 C.F.R. §1.8: The undersigned hereby certifies that this Transmittal Letter and the paper(s), as described hereinabove, are being deposited in the United States Postal Service, as first class mail, in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on this 17 day of June, 1998.

MUETING, RAASCH & GEBHARDT, P.A.
P.O. Box 581415, Minneapolis, MN 55458 (612-305-1220)

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Reg. No.: 33,977
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(LARGE ENTITY TRANSMITTAL UNDER RULE 1.8)



PATENT
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6/29/98

RESPONSE

Assistant Commissioner for Patents
Washington, D.C. 20231

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Dear Sir:

The Office Action mailed 17 March 1998, has been received and carefully reviewed. Applicants respectfully request entry of the following response.

Information Disclosure Statements

Applicants respectfully request that a copy of the 1449 forms, as submitted with the Supplemental Information Disclosure Statements of 9 January 1998 and 23 March 1998, marked as being considered and initialed by the Examiner, be returned with the next Official Communication.

Furthermore, Applicants hereby bring the Examiner's attention to co-pending U.S. Patent Application, Serial No. 09/014,341, filed 27 January 1998.

The 35 U.S.C. §103(a) Rejection

The Examiner rejected claims 1-39 under 35 U.S.C. §103(a) as being unpatentable over Matsuo et al. (U.S. Pat. No. 4,687,707) in view of Pellerite et al. (U.S. Pat. No. 5,274,159). This rejection is respectfully traversed. This combination of documents does not teach or suggest Applicants' invention.

Matsuo et al. teach the preparation of coatings in which the fluorinated top layer plays a role in the substrate antireflectivity, as disclosed in column 2, lines 49-61. This fluorinated top layer is applied using prehydrolyzed silanes. Furthermore, the fluorinated top layer of Matsuo et al. is generally thick (usually at most 2000 Angstroms, and preferably 500-1000 Angstroms), as disclosed in column 7, lines 28-41. Applicants' invention is directed to providing an antisoiling coating on an antireflective surface by coating an antireflective surface with a fluorinated silane coating composition. The antireflective properties of Applicants' antireflective articles would typically be significantly disrupted if Applicants' fluorinated silanes were coated at the thicknesses disclosed by Matsuo et al. The Examiner is requested to note that Applicants' independent article claims 1 and 15 and independent method claims 32 and 36 recite that the fluorinated siloxane antisoiling coating is less than about 100 Angstroms thick.

Matsuo et al. also teach that the fluorinated coatings are heated at elevated temperatures (120°C to 250°C, or from 70°C to 150°C in the case of transparent substrates), as disclosed in column 6, lines 21-25, in order to achieve the desired mechanical properties. The coatings of Applicants' invention require no heating or further processing, although this can be done if desired. The Examiner is requested to note that Applicants' independent method claims 16 and 36 recite that the coating method is carried out by treating an antireflective surface with a fluorinated silane coating composition without subsequent processing (e.g., baking, polishing,

solvent washing). Also, independent method claim 29 recites that the method "consists essentially of" treating an antireflective surface with a fluorinated silane coating composition.

Pellerite et al. disclose fluorinated alkoxysilanes that can be used as transient surfactants and for aqueous delivery of fluorinated siloxane coatings. There is no teaching or suggestion that these compounds can be used to make antisoiling coatings on antireflective surfaces. There is no teaching or suggestion that these compounds can be used without substantially changing the antireflective properties of an antireflective surface, or such that a coated article emerges from the coating composition substantially autophobic. Furthermore, the specific compounds referred to in column 4 of Pellerite et al. do not fall within the scope of the compounds used by Applicant to make the antisoiling coatings on antireflective articles. The Examiner is requested to note that Formula I in column 4 includes the divalent moiety A, at least one of which is a hydrophilic group (e.g., ethylene oxide). See, column 5, lines 30-35. The only specifically recited compounds used in Pellerite et al. that are also used in Applicants' invention as recited in independent claims 1, 11, 16, 29, 32, 35, and 36, are the trichlorosilanes. These compounds are used as precursors in the synthesis of the alkoxysilane surfactants of Pellerite et al.

In sum, there is no teaching or suggestion in either Matsuo et al. or Pellerite et al. that any compounds disclosed by Pellerite et al., whether they be surfactants or precursors to the surfactants, can be used to coat antireflective substrates to impart good durable antisoiling properties. Furthermore, there is no teaching or suggestion in either Matsuo et al. or Pellerite et al. that any compounds disclosed by Pellerite et al., whether they be surfactants or precursors to the surfactants, can be used on an antireflective surface with no subsequent processing (specifically recited in claims 16 and 36, indirectly recited in claim 29 through use of "consisting

Response

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essentially of" transition phrase), without substantially changing the antireflective properties of the underlying antireflective surface (claims 11, 15, 35, and 36), and/or such that the coated substrate emerges substantially autophobic (claim 31). Thus, it is respectfully requested that this rejection be withdrawn.

Summary

The Office Action mailed 17 March 1998, has been received and carefully reviewed. In consideration of the above remarks, it is respectfully submitted that each of the pending claims 1-39 is in condition for allowance, and notification to that effect is respectfully requested.

The Examiner is invited to contact Applicants' Representative at the below-listed telephone number if it is believed that prosecution of this application may be assisted thereby.

I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING
DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST-
CLASS MAIL IN AN ENVELOPE ADDRESSED TO THE ASSISTANT
COMMISSIONER FOR PATENTS, WASHINGTON, D.C. 20231.

ON June 17, 1998
DATE OF DEPOSIT
Ann M. Mueting
Ann M. Mueting

Respectfully Submitted,

PELLERITE et al.

By their Representatives,
Mueting, Raasch & Gebhardt, P.A.
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June 17, 1998
Date

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